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ABSTRACT

One of 33 self-paced instructional modules for training industry services leaders, this module contains three sequential learning activities on determining appropriate types of instructional methods and media for an industry services job training program. (Industry services are manpower services provided by public agencies to new or expanding private industries.) The first learning activity is designed to provide the learner with the needed background information on various instructional methods and media and on selecting those most appropriate for learner mastery of the performance objectives. The second learning activity provides for application in a practice situation, and a final checkout activity allows the learner to determine types of instructional methods and media in a real work situation, such as when employed or when serving as an intern learner. Feedback devices (learner self-test and performance checklist) are included for use by the learner and instructor/supervisor to assess progress. Case study information and a methods and media worksheet are appended for guidance in performing the objectives. (This module is the third of seven on preparing training materials.) (JT)

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MODULE NUMBER VIII-C

# DETERMINING TYPES OF INSTRUCTIONAL METHODS AND MEDIA

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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## SELF-PACED INSTRUCTIONAL MODULE

2

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## INSTRUCTIONAL PROCEDURE

This module contains two sequential learning activities and a final check-out activity. A brief overview precedes each learning activity and the final check-out activity. Each learning activity and the final check-out activity provide learning experiences to help you accomplish the objectives. Feedback devices (learner self-test, worksheet, and performance checklist) are provided to help you determine when each objective has been accomplished. Case study information is presented to guide you in determining types of instructional methods and media.

The first learning activity is designed to provide you with the needed **background information**. The second learning activity is designed to give you an opportunity to apply that information in a **practice** situation. The **Check-Out Activity** is the final learning activity. It is designed to allow you to determine types of instructional methods and media in a real work situation, such as when you are employed or when you are serving as an intern learner. The **Performance Checklist** (Appendix A) is used by the learner and the instructor/supervisor to assess progress. The checklist is applicable for both practice performance and performance in the real work situation.

After reading the **Objectives** and the **Introduction** on pages 2 and 3, you should be able to determine how much of this module you will need to complete before the **Check-Out Activity**.

* If you already have the necessary **background information** required for determining types of instructional methods and media, you may not need to complete **Learning Activity I**, p. 4.
* If you already have had **practice** in determining types of instructional methods and media, you may not need to complete **Learning Activity II**, p.45.
* Instead, with the approval of your instructor or supervisor, you may choose to proceed directly to the **Check-Out Activity**, p. 46, and attempt to determine types of instructional methods and media when you have access to a **real work situation**.

Your instructor or supervisor may be contacted if you have any difficulty with directions, or in assessing your progress at any time.

## SUPPLEMENTARY TEACHING/LEARNING AIDS

An effort has been made to make this module as self-contained as possible. The information contained in the module should be sufficient to develop "entry-level" knowledge and skills. However, more has been written on this topic.

A list of resources which supplement those contained within the module follows. Check with your instructor or supervisor (1) to determine the availability and the location of these resources, and (2) to get assistance in setting up additional learning activities.

**Learning Activity I**

* Butler, F. Coit. **Instructional Systems Development for Vocational and Technical Training.** Englewood Cliffs, New Jersey 07632: Educational Technology Publications, 140 Sylvan Avenue, 1972, pp. 127-136.
* Johnson, Stuart; and Johnson, Rita B. **Developing Individualized Instructional Material.** Palo Alto, California 94304: Westinghouse Learning Press, 2680 Hanover Street, 1970, pp. 45-61.

**Learning Activity II**

* References cited above

**Check-Out Activity**

* State coordinator for industry services
* Local training institution personnel who have been involved with the industry services program
* Industry representative

## OBJECTIVES

1. After completing the required reading, take the learner self-test to demonstrate that you have attained the knowledge of determining types of instructional methods and media for an industry services program. You should complete all items correctly. **(Learning Activity I)**

II. After analyzing the performance instructions, complete all the designated experiences in determining types of instructional methods and media in a practice situation. Your work must conform to the checklist provided in the Appendix. **(Learning Activity II)**

III. In an actual work situation, determine the type instructional methods and media required for an industry services program. Satisfactory performance will be realized when all items on the performance checklist (Appendix A) are rated "yes." **(Check-Out Activity)**

## DETERMINING TYPES OF INSTRUCTIONAL METHODS AND MEDIA

### INTRODUCTION

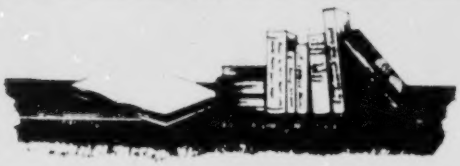
Prior to the beginning of instruction, you must know what instructional methods and media are best for learner mastery of the performance objectives. The instructor must also feel comfortable in the application of the methods and media.

The most effective method is actual task performance. People learn best by doing. You must devise opportunities, or identify existing instructional materials, which allow for practice of the skills, knowledge, and responsibilities specified in the performance objectives.

While practice is the cornerstone of instruction, it alone is not sufficient for learning. Other methods which may precede, dovetail, or follow practice are lectures, demonstrations, discussions, independent study, programmed instruction, and simulations. Any method can be used at any stage of learning, but some are more appropriate for one stage than another.

Once the best instructional methods are identified for each performance objective, you are in a position to identify the instructional media required. These resources must prompt or guide the learner to accomplish new skills or knowledge. Special instructional equipment and tools required should also be identified.

The purpose of this module is to describe in outline form the instructional methods and media that may be utilized in an industry services training program. You will also have an opportunity to practice identifying instructional methods and media for a simulated training program.



## LEARNING ACTIVITY I: INFORMATION

You should study the information presented in the following section. You may wish to read more on the subject from the references cited in the section on **Supplementary Teaching/Learning Aids**. After reading these materials, you will demonstrate knowledge of determining types of instructional methods and media by completing the **Learner Self-Test**, p. 39 . You will be evaluating your knowledge by comparing your self-test answers to the **Answers to Self-Test**, p. 43 .

### I. TERMS UNIQUE TO MODULE

A. **Instructional media**. The aids used to teach knowledge, skills, and responsibilities.

B. **Instructional method**. A way of teaching knowledge, skills, and responsibilities.

C. **Instructional resources**. Used synonymously with instructional media.

D. **Learning activities**. Specific activities or pursuits carried out in the classroom or laboratory to teach the knowledge, skills, and responsibilities required by the industry.

E. **Practice of performance**. Completing a task.

F. **Task analysis**. The process of identifying the job content in industry.

G. **Training method**. Used synonymously with instructional method.

### II. TYPES OF INSTRUCTIONAL METHODS

A. Demonstration method

B. Discussion method

C. Independent study method

D. Lecture method

E. Peer training method

F. Performance method

G. Programmed self-instructional method

H. Recitation method

I. Simulation method

Each of the previous types of methods is explained as to its application and qualifications for use on the following pages. Courtesy is extended to the Air Training Command, U.S. Air Force for use of the materials.

METHOD OF INSTRUCTION: **DEMONSTRATION METHOD**

DEFINITION: **An accurate portrayal of the precise actions necessary to perform skills or processes.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Use with on-the-job course.<br>– Most useful in teaching motor skills, simple manual skills or processes, and foreign languages or other verbal chains.<br>– To set the standard of performance.<br>– To focus attention upon basic procedures.<br>– To provide overviews or set goals of instruction. | – The demonstrator must be a skilled performer who is able to verbally explain each step being demonstrated. This may require many hours of practice.<br>– Since the student does not perform during a demonstration, you cannot evaluate the student's learning except through questionning. |

GUIDELINES FOR USE

Have an expert make demonstration using actual equipment or apparatuses the student will use on the job.

Simultaneously provide simple explanation of the ongoing procedure as it is being performed. Tell the "why" as well as what is being performed. Point out critical aspects of the procedure.

Provide repetition of complex operations.

Immediately follow by supervised practice. If immediate practice is not feasible, ask student to verbally describe the performance or process. (See Performance Method)

METHOD OF INSTRUCTION: **DISCUSSION METHOD**

DEFINITION: **Interaction between students and/or an instructor in order to analyze, explore, and/or debate an issue, topic, or problem.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Intermediate and final stages of learning.<br>– Use in formal course.<br>– Use as an extension of existing knowledge or to clarify and amplify familiar material.<br>– Use when students must learn to identify and solve problems, and to frame their own decisions.<br>– Use when students need to be exposed to a variety of approaches, interpretations, and personalities.<br>– Use when teamwork is needed. | – Time consuming and limited by class size.<br>– Requires that participants have sufficient background so that they can talk about subject.<br>– Avoid using group discussions in early stages of learning when new material is being introduced; students are new and inexperienced in the topic area. |

| GUIDELINES FOR USE |
|---|
| Know the subject matter to be discussed.<br>Verbally outline the specific problem or issue or provide a case study of the situation to be read prior to the discussion.<br>Call upon individuals to clarify, analyze, and summarize.<br>Guide the discussion; do not lecture!<br>Be patient with group's slow progress to understanding.<br>Be alert to group's tendency to wander. |

METHOD OF INSTRUCTION **INDEPENDENT STUDY METHOD**

DEFINITION: **Assigned readings or research which the student undertakes without special guidance or instruction.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Final stage of learning.<br>– Use with all types of courses.<br>– As an adjunct to other methods of instruction.<br>– To improve an individual's present job performance.<br>– To prepare an individual for promotion.<br>– To allow a student to pursue a special interest not shared by other students. | – Student must be capable of setting goals and arriving at a means of achieving them. |

| GUIDELINES FOR USE |
|---|
| Provide the student with a reading list tailored to special needs.<br>Provide the student with a statement of objectives which specify what to accomplish.<br>Devise means of evaluating learning, e.g., written or oral tests, performance tests. |

METHOD OF INSTRUCTION: **LECTURE METHOD**

DEFINITION: **A discourse given before a class or an audience for instructional purposes.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Early stage of learning.<br>– Use in a formal course.<br>– Use if time is short and many ideas must be presented.<br>– Use if number of instructors is limited and an instructor is responsible for a large number of students.<br>– Use with all types of courses. | – Limits student participation. The lecture becomes a "telling session" for the instructor.<br>– Checking student learning prior to testing is difficult.<br>– Student attention and interest may wander. |

| GUIDELINES FOR USE |
|---|
| Prepare an outline or plan in advance.<br>Organize the material into meaningful topics to promote understanding.<br>Use visual aids to express abstract concepts or to show relationships.<br>Allow time for a question-and-answer period to clarify points of confusion. |

METHOD OF INSTRUCTION: **PEER TRAINING METHOD**

DEFINITION: **A student who has completed training acts as an instructor to another student. (During teaching, the student instructor may use any one or more of the several methods contained in this directory, e.g., lecture, demonstration, etc.) Upon reaching proficiency, the trainee also instructs other students in the skills or processes to be learned.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – All stages of learning provide a one-to-one instructor-student relationship by using students to instruct other students. A student watches an expert work, gets one-to-one tutoring in the same work unit, and upon passing proficiency performs the newly learned task for the next student and instructs in the work unit.<br>– Use with on-the-job course and formal course. | – Instruction should be spot checked in order to maintain quality control. |

**GUIDELINES FOR USE**

Initially the student watches as an advanced student performs all job duties under supervision.

After familiarization, the student is instructed in the skills necessary to perform the job.

Upon passing all proficiency tests, the student becomes an instructor of a third student.

METHOD OF INSTRUCTION: **PERFORMANCE METHOD**

DEFINITION: **Student practices, performs, and applies, under controlled conditions and close supervision, the skills or knowledges which have been previously explained and demonstrated.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Intermediate and final stages of learning.<br>– Use in on-the-job courses, formal course, and field-training detachment.<br>– To permit the student to apply learning to actual situations.<br>– To allow practice with job-similar conditions, under supervision and guidance. (See Simulation Method)<br>– For verbal learning, problem solving or rule using, performance may be recitation (See Recitation Method) or take the form of a written report. | – It is time consuming because students must be given the opportunity to practice until they reach proficiency.<br>– May require special facilities and equipment which may be expensive and difficult to obtain. Once obtained, equipment must be constantly maintained.<br>– Usually requires a higher student/instructor ratio than other methods of instruction. (See Peer Training Method) |

| GUIDELINES FOR USE |
|---|
| Plan student skill development from the simple to the complex.<br>Provide explicit instructions for the student to follow when practicing.<br>Provide safety precautions for the protection of the student and equipment.<br>Set up realistic work problems. (See Simulation Method) |

METHOD OF INSTRUCTION: **PROGRAMMED SELF-INSTRUCTIONAL METHOD**

DEFINITION: **Instructional materials are prepared specifically to employ techniques of programming. Classical programmed instruction variables include small steps, carefully sequenced and cued to reduce errors; immediate feedback; and freedom on the part of the student to** vary rate of learning.

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – All stages of learning.<br>– Use with formal course, correspondence course, or field-training detachment.<br>– Useful in accommodating individual differences in rate of learning.<br>– Useful if scheduling is a problem as students may work through materials when convenient.<br>– To provide uniformity of instruction as all students may progress through same material. May be the sole source of instruction or may supplement other methods of instruction. | – Once developed, programmed materials are difficult to change. Everyone goes through the same sequence and this creates a degree of inflexibility.<br>– Development cost is high.<br>– Some students using programmed instruction object to lack of social interaction. |

GUIDELINES FOR USE

Be sure the student has all the material, equipment, or devices to complete the program.

Be sure that the student understands that the program is not a test. Responses made during the program are to help learn and not to provide a basis for grading.

Be available to handle those areas of the program when the student is having difficulty.

Periodically check the student's progress.

METHOD OF INSTRUCTION: **RECITATION METHOD**

DEFINITION: **A discourse by the student before an instructor in which the student** relates what was learned through previous study.

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Intermediate and final stages of learning.<br>– Use in formal course.<br>– Useful for assessment of learning by the instructor.<br>– Useful for providing feedback to the student.<br>– Most useful for verbal content and concepts.<br>– Having to explain or paraphrase information to others, the student is forced to analyze the material at a deeper level. | – Learning for recitation may be rote.<br>– Participation of other students not reciting is limited and their attention and interest may wander.<br>– In correspondence courses, recitation may take the form of written discourse which the student mails into an instructor. |

GUIDELINES FOR USE

Tell the students well in advance that they will be assessed by an oral recitation. If students are not prepared to recite, the method has little value.

Be sure that instruction and assignments prior to recitation are at the proper level for the students. There must be some assurance that all members of the class can in fact learn the material prior to recitation.

Allow time for a question and answer session. This allows an opportunity for the student to get feedback on performance and allows an opportunity for you to further assess the student's learning.

METHOD OF INSTRUCTION: **SIMULATION METHOD**

DEFINITION: **Representation of some aspects of reality (either a process, event, or hardware) by symbols or devices that can be manipulated more readily than their actual counterparts. (See also Performance Method)**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – All stages of learning<br>– Use with formal course.<br>– To provide analogous circumstance.<br>– To allow practice and feedback under low-risk circumstances.<br>– May be programmed to work as a self-instructional device. (See Programmed Self-Instructional Method)<br>– Allows hands-on learning rather than more mediated forms of learning. | – Developmental costs may be high and time consuming. Special facilities and equipment may be expensive and difficult to obtain. Once obtained, equipment must be constantly maintained.<br>– Usually requires a higher student/instructor ratio than other methods of training. (See Peer Training Method) |

GUIDELINES FOR USE

During the early stages of learning a low degree of realism is required. The learner is merely expected to learn nomenclature, identify locations of objects, identify properties of objects, identify appropriate actions for a given situation, etc.

During the intermediate stages of learning moderate degrees of learning are required. The learner is expected to perceive information in larger blocks or patterns and begin to coordinate skills.

During the final stages of learning a high degree of realism is required. The learner is expected to perform as on the job.

## III. CONSIDERATIONS FOR SELECTING METHODS AND MEDIA

A. **Time.** The amount of time available for developing a training program is always a factor in selecting instructional methods and media.

B. **Varying methods and media.** It is known that people have different ways of learning. If possible, variations in instructional methods and media should be made to combat boredom, and to provide optional paths for learning.

C. **Cost.** Some methods and media described in this module may be more appropriate than others due to cost factors.

The following pages outline the various instructional methods in terms of application, required effort, and guidelines for use.

## IV. TYPES OF INSTRUCTIONAL MEDIA

A. **Audio**

1. Listening lab
2. Learning lab
3. Tape recorder - 1/4" magnetic tape, 1/8" magnetic tape cassettes

B. **Audiovisual**

1. Filmstrip (sound)
2. Motion picture
3. Motion picture as repetitive loop
4. Sound/slide projector
5. Television

C. **Simulation**

D. **Print media**

1. Microform
2. Textbook

E. **Tutorial media**

1. Programmed text
2. Teaching machines

F. **Visual**

1. Filmstrip
2. Slides

G. **Visual aids**

1. Exhibits–cutaways
2. Exhibits–mock-ups
3. Exhibits–models
4. Graphics–charts, diagrams and graphs
5. Graphics–photographs
6. Graphics–illustrations/drawings
7. Overhead transparencies
8. Slides

Each of the above types of media is explained as to its application and qualifications for use on the following pages. Courtesy is extended to the Air Training Command, U.S. Air Force for use of the materials.

MEDIUM: **LISTENING LAB**

USED: **Carrels, Audio Tape Recorders, and Earphones for Listening**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present audio material on an individual basis, carrels are provided.<br>– Students may use at their convenience; suitable for repeated listening.<br>– May be used with dial-access systems.<br>– Adjunct texts, workbooks, and other printed materials may be used for responding. | – Backtracking to hear specific portions of the tape may be difficult especially with cartridges and some less expensive cassette units.<br>– Equipment requires periodic cleaning to maintain.<br>– Order of presentation is fixed.<br>– Does not have capabilities of recording student responses.<br>– Feedback is not built-in feature of the system. Since monitoring student responses is difficult, errors may be reinforced. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | Varies From Low to Moderate | Varies From Low to Moderate |

**MATERIAL/PRODUCTION CONSIDERATIONS:** Essentially the same as for any audio tape recording. Easily produced locally in short time. Recordings can be produced easily by unskilled personnel after careful study of the manuals and guides issued by manufacturers of equipment. Tape recordings can be edited to select the portion or portions most useful. Multiple copies of recordings can be reproduced by dubbing but requires special equipment.

Audio taped lessons on various topics are distributed by the National Center for Audio Tapes at the University of Colorado.

MEDIUM: **LEARNING LAB**

USED: **Carrels, audio tape recorders, microphones for student response, and earphones for listening.**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present audio material on an individualized basis, carrels are provided for each student. Microphones are provided for student response. Responses are monitored by instructors or are recorded on audio-tape. Student can compare answer with correct answer on tape. Tapes may be preserved and evaluated by instructor at later time.<br>– When no microphones are provided, students sometimes write responses in workbooks.<br>– Suitable for repeated listening.<br>– May be used with dial-access systems. | – Backtracking to hear specific portions of the tape may be difficult especially with cartridges and some less expensive cassette units.<br>– Equipment requires periodic cleaning to maintain sound quality.<br>– Order of presentation is fixed.<br>– Not feasible for subject matter areas subject to frequent change and must be continually updated. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | Varies from Moderate to High | Varies from Moderate to High |

MATERIAL/PRODUCTION CONSIDERATIONS: Essentially the same as for any audio-tape recording. However, because the material is programmed, personnel required include programmers to develop the material.

MEDIUM: **TAPE RECORDER**

USED: **1/4" Magnetic Tape, 1/8" Magnetic Tape Cassettes**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present sound (spoken, musical, artificial, natural) to groups or individuals.<br>– To provide auditory information, which students can listen to at their convenience, suitable for repeated listening.<br>– To record events or broadcasts for replay at a later time.<br>– To provide narration for slide or filmstrip.<br>– Used in learning labs, listening labs, and dial-access information retrieval systems. | – Backtracking to hear specific portions of the tape may be difficult especially with cartridges and some less expensive cassette units.<br>– Equipment requires periodic cleaning to maintain sound quality.<br>– Order of presentation is fixed. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual, Regular Size Class, or Small Group | Administrator; Individual Tutor/Counselor | Low | Low |

MATERIAL/PRODUCTION CONSIDERATIONS: Easily produced locally in short time. Recordings can be produced easily by unskilled personnel after careful study of the manuals and guides issued by manufacturers of equipment. Tape recordings can be edited to select the portion or portions most useful. Multiple copies of recordings can be reproduced by dubbing but requires special equipment.

Audio taped lessons on various topics are distributed by the National Center for Audio Tapes at the University of Colorado.

MEDIUM: **FILMSTRIP (SOUND)**

USED: **Color or black and white 35mm single frame, still pictures, and associated record or audio tape recording that is synchronized to the visual presentation. 16mm and Super-8mm Filmstrip Cartridges**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present a series of still visuals in a fixed sequence.<br>– To provide more verbal explanation than is possible with captions in silent strip.<br>– Suitable for repeated viewing and listening.<br>– Rear screen unit can be used in normally lighted rooms.<br>– Where used with headphones for listening, concentration is aided. | – Loss of flexible pacing which is integral to a silent strip.<br>– Tendency to rely too heavily on words, so that picture becomes incidental to instruction.<br>– Sequence cannot be modified.<br>– Front projection requires some room darkening. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual or Small Group | Administrator | Low | Low |

MATERIAL/PRODUCTION CONSIDERATIONS: May be produced locally in short time or may be rented or purchased from the National Audiovisual Center, General Services Administration, Washington, D. C., 20409, or from other commercial distributors.

The filmstrip media package contains a phono disc and open-ended filmstrip. In some cases, cassettes are taking the place of phono discs.

MEDIUM: **MOTION PICTURE**

USED: **Color or Black and White 16mm Film or Super-8mm Film**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present visual and auditory material including many other media (charts, graphs, still pictures, cartoons, etc.).<br>– Can be previewed and a portion of a large film can be selected for viewing. (The whole film needn't be shown.)<br>– Prints can be made in large quantities so that many groups have uniformity of instruction and are cost-effective.<br>– May be used as a complement to textbook based on programmed instruction. | – Lack immediacy of television.<br>– Cannot show the actual event in the process of its occurrence.<br>– Time span for hearing and seeing is fixed.<br>– Difficult to accommodate individual differences.<br>– Transitory, dependent upon student's careful attention to the message.<br>– Picture deterioration possible by dust, scratches, etc.<br>– Revision of material is costly and difficult to achieve. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Large or Small Group | Administrator | High for 16mm; Moderate for 8mm | Moderate to High |

MATERIAL/PRODUCTION CONSIDERATIONS: 16mm film production is complex, requiring skilled staff and special equipment. Sound film is costly and may require several months' work. Super-8mm film productions can be as complex as 16mm motion pictures or it can be done with equipment costing considerably less for a complete facility.

MEDIUM: **MOTION PICTURE AS REPETITIVE LOOP**

USED: **Color or black and white 16mm motion picture film**
**8mm Cartridge Loaded Projectors**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present a single-concept message in which both visuals and motion are important.<br>– Suitable for repeated viewing.<br>– May be a substitute for a short "live" demonstration which is difficult to set up.<br>– May be programmed to provide for active student responding or complement a programmed text.<br>– 8mm cartridge and projectors are designed specifically for a single-concept film.<br>– Prints may be made in large quantities for cost-effective instruction. | – Time span for seeing and hearing is fixed.<br>– In order to review or see a portion of an 8mm continuous loop cartridge film, one must run through the entire film to see the portion of interest. The projector cannot be simply put into a reverse, a fast forward, or stop frame operation.<br>– 8mm cartridges are not standardized.<br>– Revision of materials is costly and difficult to achieve. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | Varies from Moderate to High | Low Per Unit, But Moderate for Groups |

MATERIAL/PRODUCTION CONSIDERATIONS: Depends on the nature of the production requirement. Simple demonstrations and procedures which do not involve elaborate setups can be easily produced locally in a short time. More complicated productions usually require a skilled staff.

MEDIUM: **SOUND/SLIDE PROJECTOR**

USED: **2" X 2" slide and associated record or audio tape that is synchronized to the slide presentation**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To project a series of still images onto a screen for group viewing.<br>– To supplement the images with a prerecorded narration.<br>– Adjunct text or workbooks may be used for self-instructional approach. | – Requires darkened room unless a special daylight screen or rear-projection is used.<br>– Since each slide advances at a preset rate, presentation rate cannot be modified except with special equipment in many cases.<br>– Tendency to rely too heavily on words, so that images are incidental to instruction.<br>– Difficult to accommodate for individual differences. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual, Small Group, or Large Group | Administrator | Low | Low |

MATERIAL/PRODUCTION CONSIDERATIONS: Easily produced locally in a short time. May require skilled photographers and artists to produce any captions used. The tape recording and synchronization can usually be performed by unskilled personnel after careful study of manuals and guides issued by manufacturers of equipment.

MEDIUM: **TELEVISION**

USED: **Live Presentation, Motion Picture Film, Videotape Recordings, Video Cassettes**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present "live" transmission of an event which we see as it occurs.<br>– To present visual and auditory material including many other media such as motion pictures, charts, diagrams, filmstrips, photographs, etc.<br>– TV programming can be recorded on videotape for later showing.<br>– To record on video tape student performance and then replay it to allow the student to analyze performance. | – Time span for seeing and hearing is fixed.<br>– Active involvement (practice opportunity) is relatively limited.<br>– Difficult to accommodate individual differences.<br>– Transitory, dependent upon student's careful attention to the message. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual, Small Group, or Large Group | Administrator | Moderate to High | Moderate to High |

MATERIAL/PRODUCTION CONSIDERATIONS: Depends on video format; generally production is complex requiring large and skilled production staff which normally includes, among others, a director, a cameraman for each camera, a floorman, an audio man, script writers, lighting director, and "talent" (somebody who is in front of the camera). However, ½-inch VTR systems allow less expensive and complex productions.

MEDIUM: **SIMULATOR (Sometimes called Part-Task Trainer, Whole-Task Trainer, or Procedures Trainer)**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To allow the student "hands on" experience with substitute equipment which is safer, less costly or provides better conditions for instruction than the actual equipment on the job.<br>– Promotes a high degree of transfer because of similarity to the job.<br>– Properly programmed can provide a realistic representation of the operational setting.<br>– Can be used to represent an entire piece of equipment or can be used to represent a component part of a larger piece of equipment. | – Actual equipment may be difficult to attain. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Small Group Or Individual | Administrator; Individual Tutor/Counselor | Moderate to High | Moderate to High |

MATERIAL/PRODUCTION CONSIDERATIONS: Not normally available. Will have to be specially procured or produced to meet the requirements of the instructional program.

MEDIUM: **MICROFORM**

USED: **Microfiche [a piece of film about the size of an index and containing 30 frames (60 pages) of book copy] and Microfilm (35mm or 16mm film on which various types of images are photographed and stored)**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To store large masses of printed or visual data in a small space for later readings as projected on hard (paper) copy.<br>– For independent study or research.<br>– Allows rapid dissemination of printed material because shipping and packaging costs are greatly reduced. | – Special equipment is needed for viewing, thus hardware problems prevent wholesale application of this medium for day-to-day instruction. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | Low | Moderate |

MATERIAL/PRODUCTION CONSIDERATIONS: Cost of producing microfiche originals and duplicates runs about 10% to 15% of the cost for equivalent volumes of conventional printed material. May be prepared locally with a minimum staff of two people. Equipment needed is a 16mm microfilm camera, a processor, a duplicator, and miscellaneous cutting, storage, and quality control equipment.

## PRINT MEDIA

MEDIUM: **TEXTBOOK**

USED: **Print and Still Pictures**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present material in printed form, which the student learns from by reading.<br>– To furnish students with a highly condensed, permanent source of information. | – May treat too many topics.<br>– Difficult to update.<br>– Does not accommodate individual differences.<br>– Are sometimes not written in readable form. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | Moderate to High | Low Per Unit, But Moderate for Groups |

MATERIAL/PRODUCTION CONSIDERATIONS: Require no production considerations. General information concerning textbooks may be obtained from the American Textbook Publishers Institute, 432 Park Avenue, South, New York, New York 10016.

MEDIUM: **PROGRAMMED TEXT**

USED: **Print, Still Pictures**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present programmed materials in a convenient and portable workbook format. Responses are actually recorded in the workbook or on a separate response sheet.<br>– Allows students to work through programmed materials at their own convenience--either in class, or at home.<br>– Program may be linear or branched. | – Students may be tempted to simply look at response page and copy responses rather than work through the program.<br>– Students may find materials tedious.<br>– In linear programs the rate of learning is controlled by student, but sequence and knowledge of results is controlled by program. Branching type programs allow for greater individualization. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | High | Low Per Unit, But Moderate for Groups |

MATERIAL/PRODUCTION CONSIDERATIONS: Many programs are available commercially. They are in the commerce and standardized subject matter areas, skills and trades. Consequently, for Air Force training needs they will normally have to be specially prepared. Development of programs requires a substantial investment of man-hours. Personnel required include programmers to write the material and subject matter experts to insure the accuracy of the material. These capabilities are seldom found in one person.

MEDIUM: **TEACHING MACHINES**

USED: **Print, Still Pictures**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present programmed materials to a student in a controlled fashion.<br>– The rate of presentation is normally controlled by the student, but sequence, knowledge of results, etc., is controlled by the machine.<br>– May range from simple devices which are manually operated to complex computers.<br>– May incorporate audio and visual transient media.<br>– May present linear or branching programmed materials. | – Bypassing may be difficult.<br>– Students may find program tedious.<br>– Commercial programs are not standardized and thus are suitable for use with a specific machine and no other machine.<br>– As students use machine one at a time, scheduling is a consideration.<br>– Not feasible for subject matter areas subject to frequent change and must be continually updated. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | High | Moderate to High |

MATERIAL/PRODUCTION CONSIDERATIONS: Some programs are available commercially, but they will normally have to be specially prepared. Development of programs requires a substantial investment of man-hours. Personnel required include programmers to write the material and subject matter experts to insure the accuracy of the material. These capabilities are seldom found in one person.

MEDIUM: **FILMSTRIP (SILENT)**

USED: **Color or black and white 35mm filmstrip containing from fifteen to sixty images. 16mm and Super-8mm Filmstrip Cartridges**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To present a number of still visuals in a fixed, highly structured sequence.<br>– Student determines own rate of advancement through sequence.<br>– Suitable for repeated viewing.<br>– Requires minimum storage space in comparison to storage space needed for slide trays.<br>– Rear screen units can be used in normally lighted room. | – Sequence cannot be modified.<br>– Verbal explanations limited to captions on slides.<br>– 16mm and Super-8mm filmstrips are not standardized and availability is limited.<br>– Front projection requires some room darkening. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Individual | Administrator; Individual Tutor/Counselor | Low | Low |

MATERIAL/PRODUCTION CONSIDERATIONS: May be done locally in short time or may be rented or purchased from the National Audiovisual Center, General Services Administration, Washington, D. C., 20409, or from other commercial distributors.

Stand-alone projection systems for 35mm filmstrips have been developed. They are simple to operate, low in cost, and allow for flexible scheduling. In their simplest form, they are hand-operated viewers operating on penlight batteries.

## VISUAL AIDS

MEDIUM: **SLIDES**

USED: **2" x 2" 35mm Slides**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To project a number of still images onto a screen for group viewing.<br>– For subsequent presentation, slides can easily be removed, updated, or arranged to be shown in a different order.<br>– Some projectors may be operated remotely to allow the instructor to point to critical parts of the image on the screen. | – Verbal explanations must be provided by instructor.<br>– Requires darkened room unless a special daylight screen is used.<br>– Since presentation is normally for group viewing, rate of presentation may be too fast for some and too slow for others. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Large or Small Group | Expository; Carries Burden of Instruction | Low | Low |

MATERIAL/PRODUCTION CONSIDERATIONS: May be done locally in a short time. Photographic equipment is frequently available or easily acquired. Slides may be developed commercially or in-house, depending on facilities.

MEDIUM: **EXHIBITS**

USED: **Cutaways**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Model which shows inside of parts or a process hidden by a covering. They may be life-size or scaled-up or scaled-down version with varying degrees of detail. | – Should be used only when three-dimensional representation is essential to learning and the same conditions cannot be represented by two-dimensional form without having a detrimental effect on instruction.<br>– May require verbal captions or text or instructor explanation for understanding. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Small Group | Expository | Varies from Very Low to High | Varies from Very Low to High |

MATERIAL/PRODUCTION CONSIDERATIONS: Dependent upon the nature of the representation. Scale cutaways may require skilled cutaway builders and almost always require a substantial amount of time to complete. Simplified cutaways generally require less highly skilled personnel and take a shorter time to complete. Component parts for both types of cutaways are easy to obtain. The simpler the cutaway, the easier and less expensive it is to produce.

## VISUAL AIDS

MEDIUM: **EXHIBITS**

USED: **Mock-Ups**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To emphasize or highlight certain elements or components by eliminating all non-essential elements of reality which are not necessary for learning.<br>– Emphasizes certain things to the exclusion of others. | – Should be used only when three-dimensional representation is essential to learning and the same conditions cannot be represented by two-dimensional form without having a detrimental effect on instruction.<br>– May require verbal captions or text or instructor explanation for understanding. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Small Group | Expository | Varies from Very Low to High | Varies from Very Low to High |

**MATERIAL/PRODUCTION CONSIDERATIONS:** Dependent upon the nature of the representation. Scale mock-ups may require skilled mock-up builders and almost always require a substantial amount of time to complete. Simplified mock-ups generally require less highly skilled personnel and take a shorter time to complete. Component parts for both types of mock-ups are easy to obtain. The simpler the mock-up, the easier and less expensive it is to produce.

MEDIUM: **EXHIBITS**

USED: **Models**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – Scale models represent exact scaled version of reality providing faithful reproduction essential to learning.<br>– Simplified models do not represent reality in all detail. | – Should be used only when three-dimensional representation is essential to learning and the same conditions cannot be represented by two-dimensional form without having a detrimental effect on instruction.<br>– May require verbal captions or text or instructor explanation for understanding. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Small Group | Expository | Varies from Very Low to High | Varies from Very Low to High |

MATERIAL/PRODUCTION CONSIDERATIONS: Dependent upon the nature of the representation. Scale models may require skilled model builders and almost always require a substantial amount of time to complete. Simplified models generally require less highly skilled personnel and take a shorter time to complete. Component parts for both types of models are easy to obtain. The simpler the model, the easier and less expensive it is to produce.

## VISUAL AIDS

MEDIUM: **GRAPHICS**

USED: **Charts, Diagrams, and Graphs**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To visually depict by means of lines, forms, colors, and various graphic devices the conceptual structure of a process or the underlying structure of an object.<br>– To show relationships, chronological changes, distributions, time flow, organizational flow, structure, components, etc. | – Can display only a small amount of subject content. A diagram must be as simple as possible in order to be effective.<br>– Reading a chart, diagram, or graph properly may require guidance from the instructor or accompanying verbal captions and text. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Regular Class, Small Group, or Individual | Expository | Very Low | Very Low |

MATERIAL/PRODUCTION CONSIDERATIONS: May be produced locally in a very short time. Can be produced on a chalkboard or other display surface, prepared in advance on slides or overhead transparencies, or reproduced and distributed to individual students. Extensive collections of diagrams, charts, and graphs can be clipped from newspapers, books, magazines, textbooks, etc. These can be shown using an opaque projector.

## VISUAL AIDS

MEDIUM: **GRAPHICS**

USED: **Photographs**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To represent in still pictures a realistic representation of objects, places, or persons.<br>– Preferred when visual recognition is critical to learning.<br>– To represent an object or place from a point of view not normally seen by the student in order to show important relationship, e.g., aerial photograph. | – Only represent those elements critical to learning. Omit embellishments.<br>– Use color only if it facilitates learning by calling attention to relevant similarities and differences.<br>– May require accompanying verbal text or instructor explanation for understanding. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Regular Class, Small Group, or Individual | Expository | Low | Low |

**MATERIAL/PRODUCTION CONSIDERATIONS:** May be produced locally in a short time. If enlargements or special lighting effects are called for, special equipment will be necessary.

## VISUAL AIDS

MEDIUM: **GRAPHICS**

USED: **Illustrations/Drawings**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To represent in still pictures subject matter which requires representation in varying degrees of reality (stick figures to detailed illustrations).<br>– Preferred over photographs when simplification is required for better learning or when exaggeration will call attention to components critical to learning. | – Only represent those elements critical to learning. Omit embellishments.<br>– Use color only if it facilitates learning by calling attention to relevant similarities and differences.<br>– May require accompanying verbal text or instructor explanation for understanding. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Regular Class, Small Group, or Individual | Expository | Very Low | Very Low |

**MATERIAL/PRODUCTION CONSIDERATIONS:** Depends on the nature of the illustration or drawing. If drawings are simple (stick figures) and the quality of the drawing is not critical, drawings can be created locally by nearly anyone. If accurate and realistic representation is critical, the drawings should be created by a person skilled in drawing.

MEDIUM: **OVERHEAD TRANSPARENCIES**

USED: **Transparent Still Visuals (Usually 10" x 10")**

| APPLICATIONS | QUALIFICATIONS |
|---|---|
| – To project still visuals onto a screen. Additional visuals can be overlayed onto the original to show "build-up" of display.<br>– Transparencies can be marked or written on during presentation to group.<br>– May be projected in light room.<br>– Xerox can be used to reproduce material onto a transparency. | – Difficult to accommodate for individual differences among students.<br>– Bulky for handling and storage.<br>– Verbal explanations must be provided by instructor.<br>– Requires darkened room unless a special daylight screen is used. |

| GROUP SIZE | INSTRUCTOR'S ROLE | PRODUCTION COST | EQUIPMENT COST |
|---|---|---|---|
| Large or Small Group | Expository | Very Low | Low |

MATERIAL/PRODUCTION CONSIDERATIONS: Can be locally produced by minimally skilled persons in a short time. However, the cost of reproducing color photography requires special skills and is very expensive. Special equipment for reproducing transparencies is commercially available. Transparencies can also be produced manually by writing or pasting material directly on the acetate.

## LEARNER SELF-TEST

This is a checkpoint knowledge test needed before proceeding to the task of determining methods and media in a practice situation. Follow the instructions provided with each item. Check you answers with the **Answers to Self-Test** which follow. If you fail to complete all items correctly, you may wish to go back and review parts of the module information.

In the answer blank to the left of each statement, place the letter in Column I that best describes the statement in Column II.

| | | |
|---|---|---|
| _____ 1. | An accurate portrayal of the precise actions necessary to perform skills or processes. | a. Demonstration method<br>b. Discussion method<br>c. Independent study method<br>d. Lecture method<br>e. Peer training method<br>f. Performance method<br>g. Programmed self-instructional method<br>h. Recitation method<br>i. Simulation method |
| _____ 2. | Representation of some aspect of the job by symbols or devices that can be manipulated more readily than their actual counterpart. | |
| _____ 3. | Assigned readings or research which the student undertakes on his/her own without special guidance or instruction. | |
| _____ 4. | Interaction between students and/or instructor in order to analyze, explore, and/or debate an issue, topic, or problem. | |
| _____ 5. | A student who has completed training acts as an instructor to another student. Upon reaching proficiency, the trainee instructs other students in the skills or processes to be learned. | |

6. Which one of the following is **not** an application of a tape recording as an instructional media?

   a. To provide narration for slides

   b. To record lectures for later listening

   c. To provide narration for filmstrips

   d. To use as a substitute for a "live" demonstration

7. Which one of the following is the best application of television as an instructional media?
   a. To present a series of still pictures in a fixed sequence
   b. To project on videotape actual work procedures
   c. To make prints in large quantities so that many groups have uniformity of instruction
   d. None of the above
8. Which one of the following is a problem associated with the use of textbooks as an instructional media?
   a. Special equipment is needed to use a textbook in instruction.
   b. The textbook cannot be used for independent study
   c. Does not accommodate individual differences
   d. Requires a lot of preparation by the instructor
9. Which one of the following steps is **not** a recommended practice in the use of slide presentations?
   a. Showing slides without detailed verbal explanations
   b. Showing slides in a darkened room
   c. Operating projector remotely to allow the instructor to point to critical parts of the image on the screen
   d. Revising presentation by removing, rearranging, and replacing slides
10. Which one of the following is not considered part of graphics in instructional materials?
   a. Diagrams
   b. Photographs
   c. Illustrations
   d. Models

## ANSWERS TO SELF-TEST

1. a.
2. i.
3. c.
4. b.
5. e.
6. d.
7. b.
8. c.
9. a.
10. d.

*Proceed to the next learning activity for practice in determining types of instructional methods and media.

## LEARNING ACTIVITY II: PRACTICE PERFORMANCE

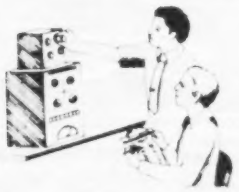
You will be required to practice determining types of instructional methods and media needed in a particular instructional situation. Several subactivities must be completed. You may wish to study the references cited in the section on **Supplementary Teaching/Learning Aids**. You must read the **Case Study Information** presented in Appendix B. You must also complete the **Methods and Media Planning Worksheet** from Appendix C. You will be evaluating your performance in selecting methods and media using the **Performance Checklist** from Appendix A.

I. Read the **Case Study Information** found in Appendix B. This information will serve as a basis for determining the types of instructional methods and media in a simulated situation.

II. Use the **Methods and Media Planning Worksheet** found in Appendix C to describe your activities in determining types of instructional methods and media required for the industry presented in the case study information.

III. Use the **Performance Checklist** from Appendix A to check your competency in determining the instructional methods and media in the simulated situation. Satisfactory performance is realized when all items on the checklist are rated "yes."

*Completion of this learning activity should have qualified you to determine instructional methods and media in a real work situation. Proceed to the **Check-Out Activity**.



## CHECK-OUT ACTIVITY: PERFORMANCE IN REAL WORK SITUATION

The activity which follows is intended to be conducted in an actual work situation. It may be performed without completing the two learning activities, if you already have the necessary knowledge and skills to do so.

You will be given an assignment to determine the types of instructional methods and media required for an industry services program in your community. In order to complete the assignment, you must perform the following activities: identify the objectives of the training program; review the time available to develop the training program; determine the training resources already available; select the best methods to teach industry tasks; and identify appropriate media which will support the instructional methods. You may consult with the state coordinator for industry services, industry representative (s), and your local administrator of vocational-technical education for assistance in completing the assignment. Your performance will be judged by your instructor or supervisor using a checklist. All items on the **Performance Checklist** (Appendix A) must be rated "yes."

*After completing the **Check-Out Activity**, you may select another module for study. Your instructor or supervisor may be contacted if you have any difficulty in selecting a module.

APPENDIX A

PERFORMANCE CHECKLIST

**Determining instructional methods and media.**

INSTRUCTIONS: If the performance is satisfactory, write YES in the space provided. If the performance is unsatisfactory, write NO in the space. Each item must be rated "yes" for satisfactory task performance.

1. The methods and media provide no more instruction than is necessary for the performance of job tasks. ☐
2. The methods and media are cost effective. ☐
3. The methods and media will prompt or guide the learner in accomplishing the job tasks. ☐
4. The methods and media are correlated with in-plant learning techniques. ☐
5. The methods and media selected compliment each other. ☐

☐

☐

☐

☐

## APPENDIX B

## CASE STUDY INFORMATION FOR DETERMINING TYPES OF INSTRUCTIONAL METHODS AND MEDIA

On November 8, the state coordinator of industry services made contact with a wholesale hardware distribution center concerning an in-plant training program. The industry now employs 35 people, and 15 additional persons will be hired about January 1 to meet customer demands. The primary focus of the distribution center work is receiving orders, and processing orders from retail hardware stores and chain stores throughout the southeast. Training for the existing workers and new employees must be completed before January 30. All persons will be employed by the industry before the training program begins.

A further description of the industry processes is as follows:

1. Orders are placed with a central office in another state.
2. Central order receipts are then transferred to the distribution center via computer terminals.
3. A printed copy of the computer terminal information is provided for appropriate distribution center personnel.
4. Inventories of hardware items are kept at the distribution center. A majority of the workers are engaged in handling the hardware items received at the distribution center and shipped to customers.

The following activities are performed by the workers:

1. Inventories are kept on all items. Managers are notified when inventories are low, and bulk orders are placed to manufacturers of the hardware items.
2. Hardware items are moved in bulk from trucks which haul the items from the manufacturers.
3. Shelves and other warehouse areas are stocked and coded (labeled) for easy retrieval of hardware items.
4. Orders received from customers are filled from the inventories of hardware items in the center. Various handling methods are used to move items from the warehouse areas, e.g., hand trucks and forklift trucks.

5. Records are kept of items removed and replaced in the distribution center.

6. Trucks which haul the orders to customers are loaded.

The industry services leader must develop a training program for upgrading the existing work force. The primary emphasis of the upgrading program will be to cross-train workers to perform many tasks. Entry-level training must also be provided for 15 new employees.

## APPENDIX C

## METHODS AND MEDIA PLANNING WORKSHEET

PROSPECTIVE INDUSTRY

1. What type training program (s) will be needed?
   a. Pre-employment
   b. In-plant

2. What skills are needed by the employees?

3. How much time is available for developing the program?

4. What resources are likely available for developing the training program?

INSTRUCTIONAL METHODS AND MEDIA

1. What possible methods can be used for training? Justify why these might be appropriate.

2. What type media could be used to support the methods of instruction? Justify why each type media might be appropriate.

FINAL SELECTION OF METHODS AND MEDIA

Describe your final selection of methods and media.

# LIST OF INDUSTRY SERVICES LEADERSHIP DEVELOPMENT MODULES

I. **Orientation to Industry Services**

- A. Introduction to Industry Services
- B. Industry Services Leadership Development Program: Guide for Using the Self-Paced Instructional Modules

II. **Establishing Contacts and Relationships**

- A. Speaking to Industrial and Community Groups
- B. Writing Articles for News Media
- C. Identifying Functions of Agencies Involved in Industry Services
- D. Developing a Brochure for Industry Services

III. **Obtaining Agreements**

- A. Developing Training Agreements
- B. Developing a Lead-time Schedule
- C. Interpreting Legislation Related to Industry Services

IV. **Identifying Training Needs**

- A. Collecting Framework Production and Training Information
- B. Selecting Types of Training Programs
- C. Preparing a Budget for an Industry Services Project

V. **Acquiring Resources**

- A. Selecting Instructors for Industry Services
- B. Securing a Training Site
- C. Securing Training Equipment, Tools, and Supplies

VI. **Training Instructors for Industry Services**

Training Instructors for Industry Services

VII. **Preparing for Training**

- A. Adapting the Training Site to Training Needs
- B. Evaluating Safety Conditions at Training Sites
- C. Announcing the Opening of a Training Program

VIII. **Preparing Training Materials**

- A. Conducting a Task Analysis
- B. Developing Performance Objectives
- C. Determining Types of Instructional Methods and Media
- D. Developing Performance Tests
- E. Developing Training Manuals
- F. Preparing Videotapes for an Industry Services Program
- G. Setting Up Learning Centers for Industry Services Programs

IX. **Selecting Candidates**

Developing a Plan for Testing and Counseling Applicants for a Training Program

X. **Monitoring Training Programs**

- A. Assisting in Providing Pre-Employment and In-Plant Training
- B. Developing a Procedure for Keeping Participating Agencies Informed About Training Program Activities
- C. Monitoring Training Programs for Progress and Expenditures

XI. **Closing Training Programs**

Closing a Training Program

XII. **Placing Program Participants**

Developing a Plan for Placing Graduates of a Pre-Employment Training Program

XIII. **Evaluating Industry Services Programs**

Evaluating Industry Services Programs

**Direct Inquiries To:** Research and Curriculum Unit for Vocational-Technical Education, College of Education, Mississippi State University, Drawer DX, Mississippi State, MS 39762 (601) 325-2510